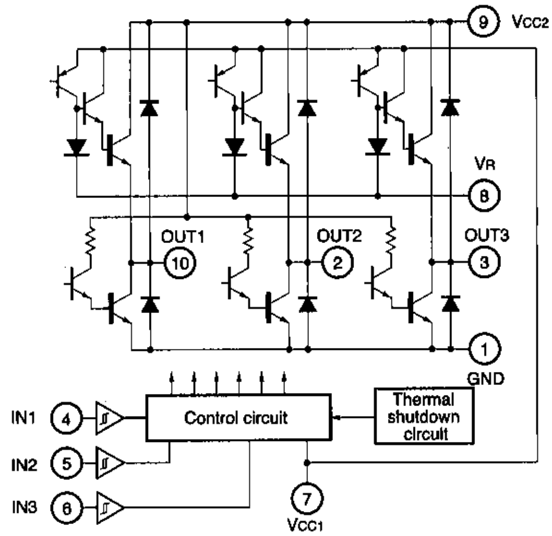
2-channel reversible motor driver
BA6259N

The BA6259N incorporates two reversible-motor drivers.

● Features

1) Two reversible-motor driver circuits are built in.
2) Built-in thermal shutdown circuit.
3) SIP10pin package.

● Block diagram



● Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC1}	20	V
	V_{CC2}	25	V
Power dissipation	Pd	1000*1	mW
Operating temperature	Topr	−20~75	℃
Storage temperature	Tstg	−50~125	℃
Input voltage	V_{IN}	−0.2~6	V
Output current	Io	1.0*2	A

*1 Reduce power by 10 mW for each degree above 25℃.
*2 50ms pulse with a duty ratio of 1/50

●Electrical characteristics (Unless otherwise noted, Ta=25°C and V_{CC}=12V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Operating supply voltage	V_{CC1}	8	−	18	V	$V_{CC2} < V_{CC1}$
	V_{CC2}	8	−	18	V	
Output reference voltage (pin 8)	V_R	8	−	18	V	V_R and V_{CC2} are directly connected
Current consumption	I_{CC}	−	12	24	mA	$R_L=\infty$, 4, 5, 6pin ; "L"
LOW level input voltage	V_{IL}	−	−	1.0	V	4, 5, 6pin
HIGH level input voltage	V_{IH}	3.5	−	−	V	4, 5, 6pin
LOW level output voltage (pins 2, 3, 10)	V_{OL}	−	0.3	0.5	V	I_O=0.15A
HIGH level output voltage (pins 2, 3, 10)	V_{OH}	11.0	11.3	−	V	Pins 8 and 9 are directly connected, I_O = 0.15 A

●Input/output truth table

Input			Output		
4pin (IN)	5pin (IN)	6pin (IN)	10pin (OUT)	2pin (OUT)	3pin (OUT)
L	L	L	OPEN	OPEN	OPEN
		H			
H	L	L	H	L	OPEN
H	L	H	L	H	OPEN
L	H	L	H	OPEN	L
L	H	H	L	OPEN	H
H	H	L	L	L	L
		H			

* HIGH level input is 3.5 V or more
LOW level input is 1.0 V or less

●Application example

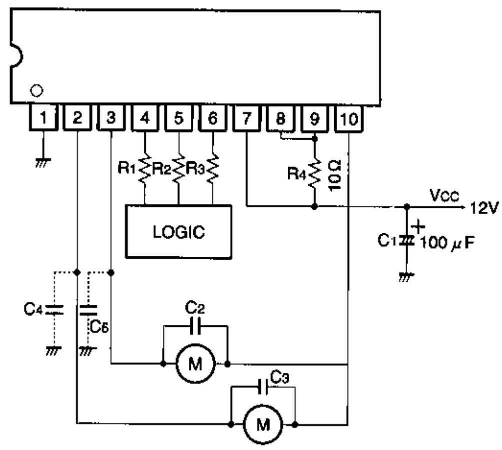


Fig.1

C_2, C_3 : Capacitors for preventing parasitic oscillation. Though the optimum capacitance depends on such PCB arrangement factors as the power supply circuit, motor characteristics, and conductor foil patterns, a range of 0.01~1 μF is recommended.

C_4, C_5 : Capacitors for preventing parasitic oscillation. They may or may not be required, depending on the PCB arrangement. A capacitance range of 0.01~10 μF is recommended.

●Control pin equivalent circuit

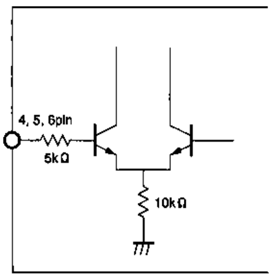


Fig.2

●Precautions for use

(1) Use the BA6259N with V_R (pin 8) short-circuited to V_{CC2} (pin 9). The V_{CC2} potential should be lower than the V_{CC1} potential. Under these conditions, the IC provides a HIGH level output voltage of 11.3V (typical, V_{CC2}=12V). Because a single transistor is used for the low-side output stage, the LOW level output voltage is further lowered. This results in a wide range of motor drive voltage.

(2) Though the IC input pins can be directly connected with MOS output pins, it is recommendable to connect resistors of a few kiloohms to do3en of kiloohms between the pins for the sake of pin protection.

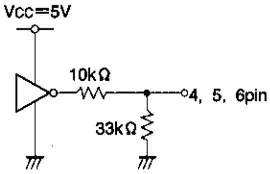


Fig.3

(3) When reversing the rotational direction of a motor, make sure to go through the brake mode in-between the opposite directions. It is recommendable to keep the brake mode for at least 10 μs.

(4) Due to the effects of capacitors C_2~C_5, the motor that is not being driven could be momentarily driven during mode switching. Check for this problem when designing your application.

(5) It is recommendable to arrange your design so that voltage rises at V_{CC1} prior to V_{CC2} when turning on the power, and voltage falls at V_{CC1} after V_{CC2} when turning off the power.

(6) Thermal shutdown circuit

When the thermal shutdown circuit is activated, the output is left OPEN. The circuit is activated when the IC junction temperature rises above 170℃. The temperature difference between the activation and deactivation settings is about 30℃.

●Electrical characteristic curves

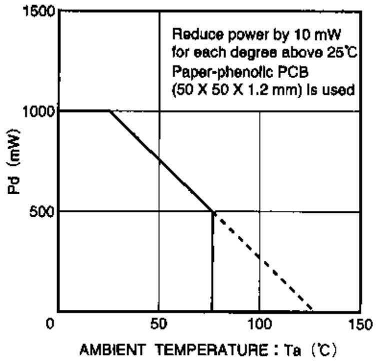


Fig.4 Power dissipation curve

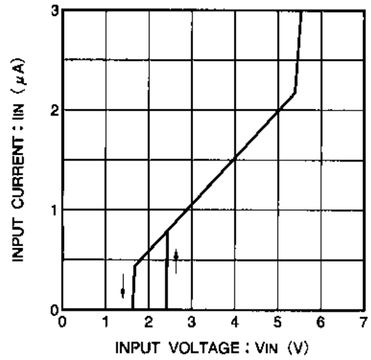


Fig.5 Input voltage vs. input current

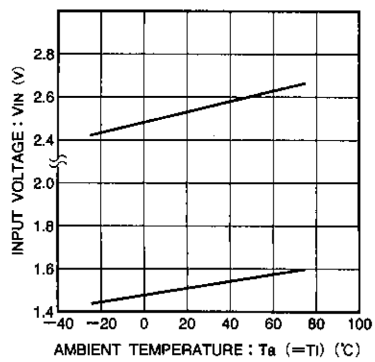


Fig.6 Input voltage vs. ambient temperature

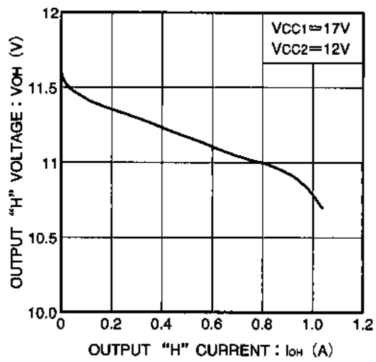


Fig.7 HIGH level output voltage vs. output current

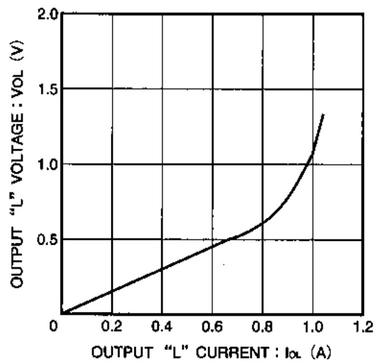
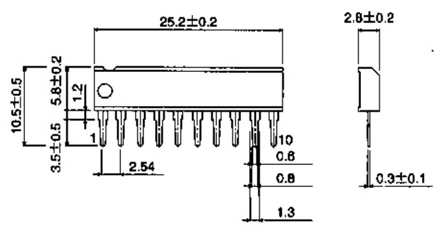


Fig.8 LOW level output voltage vs. output current

●External dimensions (Units: mm)



SIP10